

How to Build a Deck: Composite Stairs

Deck Stair Basics

Illustration of a composite deck staircase.

This deck has been fitted with a composite deck and deck railing. See the **Steps** in How to Build a Deck: Composite Decks and Railings. It is common to build the frame from treated wood and use composite surfaces, like the decks and stairs on this deck.

Composite deck stairs are typically made of 2 x 12 pressure-treated stringers spaced about 8 to 16 inches apart. They rest on solid foundations and are fastened to the deck with hangers. They have risers (also called skirting boards), treads, and railings. Stairs should be at least 36 inches wide.

You can build your own custom stringers or get pre-cut stringers at Lowe's. Custom stringers allow you to match the size of a set of stairs in your home for the most comfortable feeling. Whichever way you choose, always make sure you're adhering to building codes.

Store Decor and Porch

Shop for Power Tools

Shop for Outdoor Lighting

good to know

Some code needs kicks.

Stair Measurement

Illustration of determining the location of the stairs.

Determine the location of the bottom **Step**. Set up a long level or straight 2 x 4 at the top of the deck and measure the height at the point where you want the **Steps** to end. Use this measurement to determine the number and height of risers.

For example, if the height is 55 inches, divide this measurement by 7, the ideal height in inches for each **Step**. Round to the nearest whole number to get the number of risers - 8 in this case. Now divide 55 by 8 to get the actual height of the riser - in this case 6-7/8 inches.

$55 \div 7 = 7.86$ rounded to 8 risers

$55 \div 8 = 6.875$ or 6-7/8 inches

If you are using the deck itself as the top riser for this deck, subtract one **Step**.

The stair treads will be made of composite trim panels - two for each **Step** - making each **Step** run (front to back distance) approximately 11 inches. The back has skirting boards or skirting boards made of pressure treated wood and composite boards without grooves.

good to know

You may want to check the height of **Steps** or stairs you are already familiar with, such as interior stairs or porch **Steps**, to get an idea of what is comfortable. If the initial planned height of each **Step** is too short for comfort, reduce the number of **Steps** by 1 and recalculate.

good to know

You will often see decking panels listed as a common (or nominal) size of 5/4" thick. While you might express this measurement as 1-1/4 inches, the standard reference is 5/4 inches. Also note that the actual measurement for the thickness of a 5/4" board is usually 1". Watch our video Why is 2 x 4 not 2 x 4? Understand the difference between common/nominal measurements and actual measurements.

Create the landing

Concrete pads are a common type of landing. It has a 4" layer of gravel underneath and extends about 36" beyond the **Steps**. You can find **Step-by-Step** instructions for pouring concrete pad platforms in How to Build a Deck: Wood Stairs and Stair Railings.

This deck uses another option - concrete footers, like those that support the deck frame. You need to determine the correct placement of the footer.

good to know

Our Concrete Hole and Post Calculator helps you estimate how many bags of concrete mix you need to set up your positions.

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Step 1

A total run Illustration of a set of stairs.

Calculate the total length of the run by adding together the runs for each

individual **Step**.

Step 2

Mark the deck that will connect the **Steps**.

Step 3

Install footers for stair posts.

Install footers and posts aligned with the two outer markers at the total distance of the run. You can make a footer even with a ground. Check out Building Decks: Post Holes and Framing for **Step-by-Step** instructions for creating footers and setting up posts.

cut stringers

When you've determined the rise and run and installed the footer, mark the stairs on the 2 x 12 to create stringers.

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Step 1

Stair gauges on the frame square.

Set stair gauges on frame squares for rise height and run length.

Step 2

Mark the run as the top **Step**.

Hold the squares at the corners of the 2 x 12 plank and mark the top.

Step 3

Mark ups and runs of all **Steps**.

Slide blocks along the board and mark two rises and run the next **Step**. Keep marking until you have the correct number of **Steps** laid out.

Step 4

Illustration of the top of the stringer.

At the run mark you made for the previous **Step**, subtract the thickness of the toe kicks -- treated boards and composite boards -- and make a vertical cut line. This line indicates where the stairs connect to the deck. There will be no toe kicks at this point of the stairs.

Step 5

Illustration of the bottom of the stairs.

At the bottom **Step**, subtract the thickness of the tread from the bump and mark the line perpendicular to the bump. This is a cutting line that allows you to move the entire set of stairs down. With the treads installed, this cutout will make the bottom **Step** the same height as the other **Steps**.

Step 6

Cut the stringer.

Cut the stringer with a circular saw and finish the cut with a hand saw.

Step 7

Mark other stringers with cut stringers.

Use this stringer as a template to mark and cut other stringers.

good to know

You may also want to trace the stringers to the composite to cut the two fascia panels that cover the outer stringers. Use composite boards without grooves.

Attach stringers, toe kicks and pedals

You will attach the post to the foundation you poured on it and run the stringer between the deck and the post. Once the stringers are in place, you can add toe kicks and pedals.

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Step 1

Install support plates for stairs.

Cut a piece of board (for this deck, a 2 x 8) the same width as the **Step** to support the stringer below the rim or end joists. Use the same 2 x lumber to fasten the planks to the bottom edge of the joists.

Step 2

Install the brackets for the support plate.

Use another piece of 2 x material to support the back of the support plate on the joists or beams. Attach brackets with joist hangers or deck screws.

Step 3

Connect the stair post to the footer.

Attach the post to the footer as you did for the deck framing in How to Build a Deck: Post Holes and Framing.

Step 4

Trace the hanger on the support plate.

Line the stringers and hangers flush with the top of the 2 x 8 brackets and mark each hanger location.

Step 5

Attach stringer hangers.

Remove the stringer and attach the hanger to the support plate with 10d nails and screws.

Step 6

Attach the stringer to the hanger.

Drill pilot holes and attach the outside stringers to the hangers with nails and screws. Screw the bottom of the stringer to the bottom post.

Step 7

Attach stringers and base kicks to the posts.

Cut a pressure-treated wooden toe kick for the bottom of the stairs. Drill pilot holes and secure with screws.

Step 8

support positions.

Attach the remaining stringers and secure the columns to the bottom of the stringers with braces, anchors, and carriage bolts. Check out How to Build a Deck: Composite Decks and Railings for **Step-by-Step** instructions on bracing columns.

Step 9

Cut the remaining toe kick pieces from pressure-treated wood and composite, without grooves. Remember to cut a piece of composite material for the bottom of the **Step**. Cut the stair treads from the laminate floor and kick your toes out about an inch.

Step 10

Attach remaining toe kicks.

To drill pilot holes and attach toe kicks, first fix the treated boards and cover them with composite boards.

good to know

When attaching composite toe kick elements and pedals, use composite screws of matching color.

Step 11

Use the screws to set the gap between the pedals.

Drill pilot holes and secure the treads, using screws to create drainage gaps between the plates on each **Step**.

Step 12

Composite panels cover the stringers.

For a cleaner look, install composite stringers to cover the exterior wood stringers.